

A PERMIAN INSECT FROM TEXAS

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The specimen described below was sent to me several years ago by Mr. Charles B. Read, of the U. S. Geological Survey, who found it in a collection of fossil plants. Although insects have previously been reported from the Permian beds of Texas, this is the first to be formally described. The fossil represents a new species and genus of the Order Protorthoptera.

Family Ideliidæ

This family is known by three genera, *Idelia* Zalessky, *Metidelia* Martynov, and *Sylvidelia* Martynov, all from Permian strata of Russia. Related species of the family Lepiidæ occur in the Elmo beds in Kansas, though the family Ideliidæ itself has not yet been found there.

Ideliopsis, new genus

This is related to *Idelia* and *Metidelia*, but the fore wing differs in having distinct cross-veins apically, instead of cellules, and in having the posterior branch of the media anastomosed proximally with CuA.

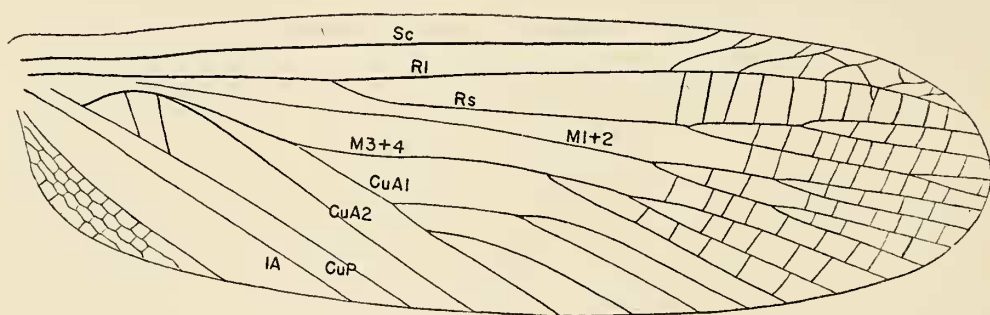
Genotype: *Ideliopsis ovalis*, n. sp.

Ideliopsis ovalis, n. sp.

Figure 1

Fore wing: length, 25 mm.; maximum width, 6 mm. Anterior margin only slightly arched, nearly straight. Rs arises just proximad to the middle of the wing, and has three main branches and a terminal twig on R4 + 5. The base of the media is not preserved, but the anterior branch of M (possibly MA) is unbranched to about the level of the first fork of Rs; it has four terminal branches. The main posterior branch of M (possible MP) is anastomosed with CuA until about the level of the origin of Rs; it diverges away and terminates in three branches. Cu has

the characteristic form of the Ideliidæ, with a straight and weak CuP, and a well developed CuA. The latter forks shortly after its origin, forming a straight posterior branch (CuA2) and a double-forked CuA1. The anal veins are unbranched and straight or nearly so. Cross-veins are preserved only in the apical part of the wing, where they are numerous and arranged at right angles to the longitudinal veins. There is no indication of cells, except in the anal area, where the cross-veins are short and close together, much as in *Metidelia*.



Ideliopsis ovalis, n. gen. and n. sp. Fore wing. drawn from holotype. Sc, subcosta; R1, radius; Rs, radial sector; M1 + 2, anterior branch of media; M3 + 4, posterior branch of media; CuA, anterior branch of cubitus; CuP, posterior branch of cubitus; 1A, first anal vein.

Holotype: No. 112018, U. S. National Museum, Washington, D. C.; collected $2\frac{1}{2}$ miles south-east of Fulda, Texas, in Castle Hollow.¹ The specimen consists of a nearly complete anterior wing and fragments of the other wings. The insect has been flattened to such an extent that convexities and concavities of the veins are weakly indicated at most. The rock containing the fossil is a bluish-gray, friable clay-shale. Horizon: Lower Permian (Belle Plains Formation, Wichita Group).

Ideliopsis seems to fit more readily into the family Ideliidæ than into the related Lepiidæ. All known species of the latter family, which is represented in the Lower Permian beds of Kansas, have a less strongly arched CuA. Additional specimens of these two families may show that they are really inseparable. All the described Lepiids

¹ This locality is mentioned by David White, 1912, Proc. U. S. Nat. Mus., 41: 495.

and Ideliids have a net-work of cross-veins covering the entire wing, and all have the posterior branch of M independent of CuA. The conclusion that these two veins are partially anastomosed in *Ideliopsis* has been reached by comparison with *Metidelia* and *Idelia*. In both of these, the media has a long posterior branch and CuA has two main branches. In *Ideliopsis*, M appears to lack the long posterior branch and CuA appears to have an extra anterior branch. It seems probable, therefore, that the posterior branch of M has become attached to CuA1.

The stratum which yielded *Ideliopsis* is apparently about the same age as the insect beds near Elmo, Kansas. At any rate, the Belle Plains Formation of Texas, in which the specimen of *Ideliopsis* was found, has tentatively been correlated with the Wellington Formation of Kansas, of which the Elmo limestone is a member.² C. B. Read (in King, 1939, p. 697) has referred to the plants of the Belle Plains Formation as a "Gigantopteris assemblage." David White, who published a list of the plants of the Formation,³ noted the occurrence of insects in the main plant bed, 4½ miles southeast of Fulda, though he did not mention their being found at Castle Hollow. In 1932 I searched for insects at both localities for several days, but without success.

² A. S. Romer, 1935, Bull. Geol. Soc. Amer., 46: 1597-1658 (esp. fig. 3).
P. B. King, 1939, Bull. Amer. Assoc. Pet. Geol., 26: 535-763.

³ David White, 1912, Proc. U. S. Nat. Mus., 41: 506.